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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/877,131	06/11/2001	Zhen Liang Shi	18903.00	1283

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EXAMINER
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WARE, CICELY Q

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/877,131

Applicant(s)

SHI, ZHEN LIANG

Examiner

Cicely Ware

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 11 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13 and 14 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 7 and 12 is/are rejected.
- 7) ☒ Claim(s) 5 and 8-11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities:
  - a. Examiner suggests applicant delete border throughout application for clarification purposes.

Appropriate correction is required.

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Objections***

3. Claim 1 is objected to because of the following informalities:
  - a. Claim 1, line 15, applicant uses the phrase "combining said plurality of plurality of". Examiner suggests using "combining said plurality of" for clarification purposes.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 3, 4 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Hunsinger et al. (US Patent 6,510,175).

(1) With regard to claim 1, Hunsinger et al. discloses in (Fig. 16) a high bandwidth efficient method for spread spectrum modulation using a chirp waveform, comprising the steps of: (a) encoding an information data signal (252), the encoded signal having a plurality of symbols encoded at a symbol rate, each symbol having a symbol duration; (b) splitting (254) the information data signal into a plurality of parallel information data signals using a serial to parallel converter; (c) generating a plurality of orthogonal chirp waveforms which are orthogonal in frequency (256); (d) modulating said plurality of parallel information data signals with said plurality of orthogonal chirp waveforms in order to produce a plurality of parallel information data signals modulated on orthogonal chirp waveforms (258); (e) combining (264) said plurality of plurality of parallel information data signals modulated on orthogonal chirp waveforms to produce a combined waveform; and (f) transmitting said combined waveform (266, 22, 24) (col. 3,

lines 25-27, col. 4, lines 45-47, 56-59, col. 5, lines 18-31, 50-56, col. 13, lines 12-22, col. 14, lines 66-67, col. 15, lines 1-4, col. 16, lines 1-6).

(3) With regard to claim 3, claim 3 inherits all the limitations of claim 1. Hunsinger et al. further discloses wherein step (d) further comprises modulating said plurality of parallel information data signals with said plurality of orthogonal chirp waveforms using quadrature phase shift keying (col. 3, lines 33-41).

(4) With regard to claim 4, claim 4 inherits all the limitations of claim 1. Hunsinger et al. further discloses wherein step (d) further comprises modulating said plurality of parallel information data signals with said plurality of orthogonal chirp waveforms using quadrature amplitude modulation (col. 3, lines 33-41).

(5) With regard to claim 12, claim 12 inherits all the limitations of claim 1. Hunsinger et al. further discloses wherein each said orthogonal chirp waveform comprises a sequence of discrete values defining a chirp waveform, said plurality of sequences being orthogonal to each other (col. 16, lines 4-6).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunsinger et al. (US Patent 6,510,175), as applied to claim 1, in view of Vander Mey et al. (US Patent 5,574,748).

(1) With regard to claim 2, claim 2 inherits all the limitations of claim 1. However Hunsinger et al. does not disclose wherein step (d) further comprises modulating said plurality of parallel information data signals with said plurality of orthogonal chirp waveforms using binary phase shift keying.

However Vander Mey et al. discloses wherein step (d) further comprises modulating said plurality of parallel information data signals with said plurality of orthogonal chirp waveforms using binary phase shift keying (abstract, col. 5, lines 49-55, col. 12, lines 65-67).

Therefore it would have been obvious to one of ordinary skill in the art to modify Hunsinger et al. to incorporate wherein step (d) further comprises modulating said plurality of parallel information data signals with said plurality of orthogonal chirp waveforms using binary phase shift keying so that each chirp that is separately decodable has a unique code sequence (Vander Mey et al., col. 5, lines 54-55).

(2) With regard to claim 6, claim 6 inherits all the limitations of claim 1. Vander Mey et al. further disclose the step of modulating said combined waveform with a radio frequency carrier before step (f) (col. 3, lines 23-41, col. 12, lines 65-66).

(3) With regard to claim 7, claim 7 inherits all the limitations of claim 1. Vander Mey et al. further discloses in (Fig. 2) the step of amplifying (S10) said combined waveform (S6, S9) for transmission over wireline before step (f) (col. 12, lines 65-66).

### ***Allowable Subject Matter***

8. Claims 5 and 8-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Claims 13 and 14 are allowed.

10. The following is a statement of reasons for the indication of allowable subject matter: The instant application discloses a high bandwidth efficient method for spread spectrum modulation using a chirp waveform. Prior art references show similar methods but fail to teach: **“a deinterleaver connected to said parallel to serial converter for deinterleaving the demodulated serial signal; and a decoder connected to said de-interleaver for decoding the received signal in order to reproduce the information data signal”**, as in claim 13.

**Conclusion**

11. The prior art made record of and not relied upon is considered pertinent to applicant's disclosure:

a. Chapman et al. US Patent 5,475,691 discloses voice activated data rate change in simultaneous voice and data transmission


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cicely Ware whose telephone number is 703-305-8326. The examiner can normally be reached on Monday – Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

***Cicely Ware***

cqw  
September 3, 2004

  
**STEPHEN CHIN**  
**SUPERVISORY PATENT EXAMINE**  
**TECHNOLOGY CENTER 2600**